Forest Health Assessment

- Baseline Data to Understand Existing Forest Conditions
- Guide Decision Making
- Future Conditions can be Compared and Provide Feedback to Forest Managers

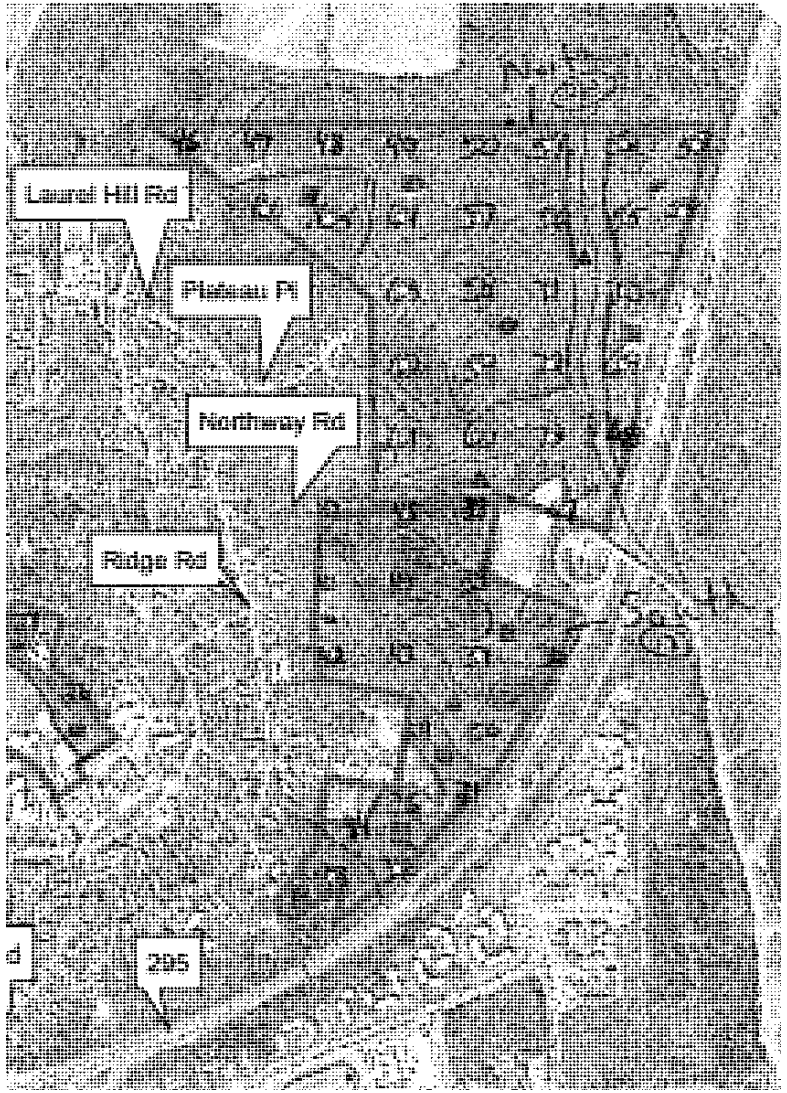


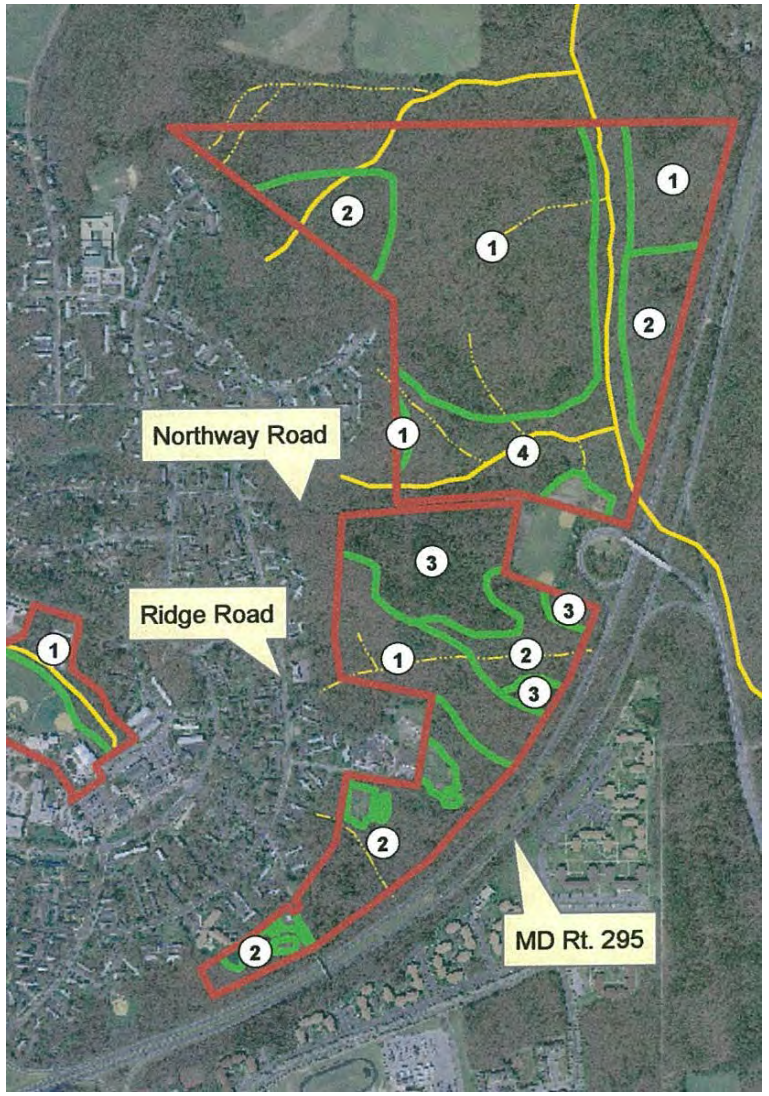




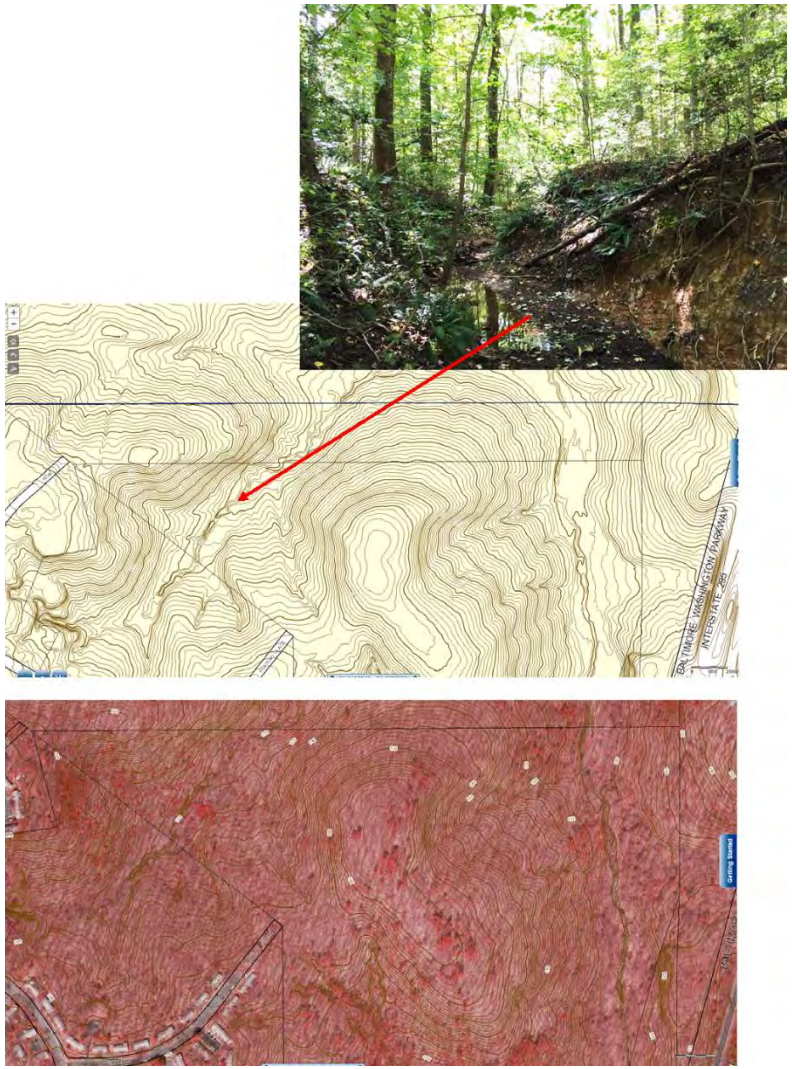
DNR Forest Stewardship Plan

- Sample Points
- Four Forest Stands
- Recommend:
  - Enhance Natural Heritage and Recreational Opportunities
  - Invasive Species
  - Trail System
  - Hazardous Trees
  - Riparian Buffers
  - Habitat Improvement





Existing Conditions



Existing Conditions

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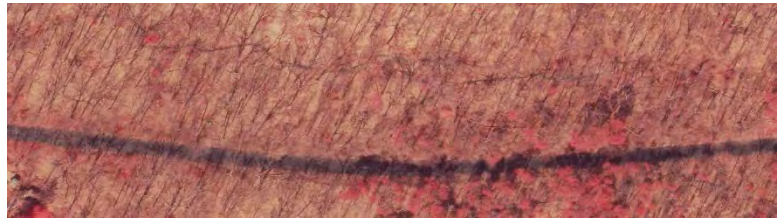
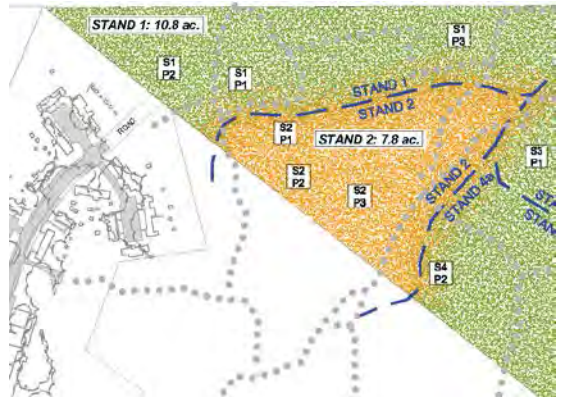
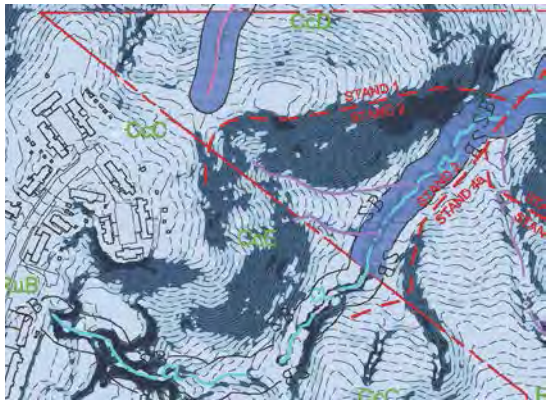


Forest Associations: Stands 1, 2, & 4





Forest Associations

- "Natural community classification is an iterative process so this document should be considered a fluid one with refinements likely to occur over time."

1980 Vegetative Map of Maryland

- **State Mapping Available**

Tulip Poplar Association
Chestnut Oak-Post Oak-Blackjack Oak Association
River Birch-Sycamore Association

U.S. National Vegetation Classification

- **GIS Based**

CEGL007220 Successional Tuliptree Forest (Rich Type)
CEGL008475 Piedmont Dry-Mesic Acidic Oak-Hickory Forest
CEGL004118 Upper Southeast Small Stream Sweetgum – Tuliptree Forest

The Natural Communities of Maryland
2016 Natural Community Classification Framework

- **GIS Based**

CEGL007220 Successional Tuliptree Forest (Rich Type)
CEGL008475 Piedmont Dry-Mesic Acidic Oak-Hickory Forest
CEGL004118 Piedmont Small Stream Floodplain Forest

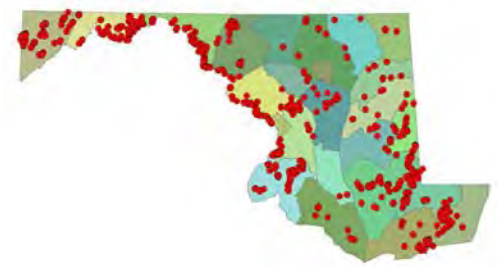


Figure 1. Vegetation sample plot locations

Data Collection Methodology

- Used State-wide since 1991 Forest Conservation Law
- Data collection based on Prince George's County Methods

Forest Sample Plot Field Data Sheet

Property: _____ Prepared by: _____

Stand #: _____ Plot#: _____ Plot Size: _____ Date: _____

Basal Area in sf/acre:	Size Class of Trees within sample plot															
Tree Species	# of Trees 2-5.9" dbh			#of Trees 6-9.9" dbh			# of Trees 10-17.9"dbh			# of Trees 18-29.9" dbh			# of Trees > 30" dbh			Total
Crown Position	DOM	COD	OTH	DOM	COD	OTH	DOM	COD	OTH	DOM	COD	OTH	DOM	COD	OTH	
Total Number of Trees per Size Class																
Number of standing dead trees 6" dbh or greater																

1/100 Ac. Samples:

List of Common Understory Species 3'-20'	% Canopy Coverage						% Invasive Cover					
	C	N	E	S	W	Total	C	N	E	S	W	Total
List of Herbaceous Species 0'-3'	% Understory Cover 3'-20'						% Herbaceous/ Woody Cover 0'-3'					
	C	N	E	S	W	Total	C	N	E	S	W	Total

List of Invasive Species		Plot Successional Stage:

Comments:

Total number of tree species>6":

sheet__ of __

A-1, FSD 5
Page 1
August, 2010

Forest Sample Plot Field Data Sheet
Preparation Guidelines

Property: List the name of the project site where the field sampling is being done
Prepared by: Name of the Qualified Professional completing the field sampling
Stand#: List the stand designation that the individual plot is located in
Plot #: List the plot number of the individual sample plot
Plot Size: List the size of sample plot (i.e. 1/10th acre)
Date: List the date that the field sampling took place

LOCATE PLOT **CENTER** AND FLAG OR STAKE LOCATION

Basal Area in square feet per acre: Data can be taken with a prism, or angle gauge. To determine the basal area using a prism, total the number of "in" trees and multiply by the prism factor for each plot sampled. The angle gauge is used in a similar method. (refer to text)

Size class of trees within sample plot:

For all five points included for the data sample plot (Center, North, South, East and West) record the following information:

Tree species: List all tree species observed from each directional point.

For each of the tree species listed, show the number in each size class and what crown position they are in.

Crown Position:

Dominant species: Trees which are the largest or tallest. They extend above surrounding individuals and capture sunlight from above and around the crown.

Co-dominant species: Trees that extend their crowns into the canopy and receive direct sunlight from above but limited sunlight from the sides. One or more sides of a co-dominant tree are crowded by the crowns of dominant trees.

Other: All other trees observed which do not meet the definition of dominant of co dominant trees. (Smaller –but qualifying trees)

Total: For each Tree Species listed, total all columns left to right for all sizes and crown position.

Total Number of Trees per Size Class: Total all rows for each size class.

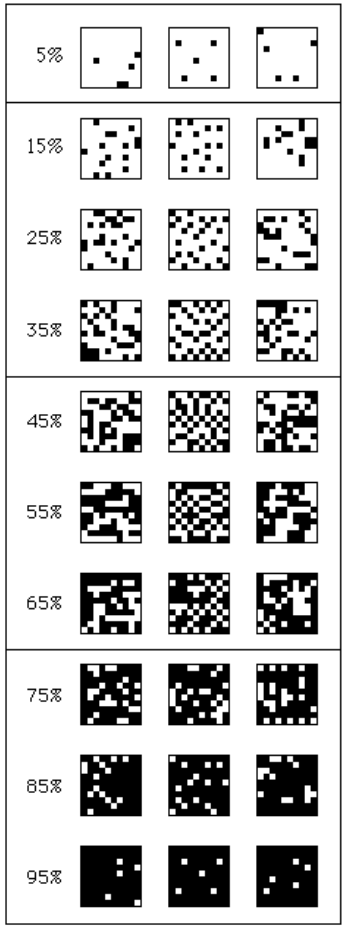
Number of standing dead trees 6"dbh or greater: List all standing dead trees 6 dbh or larger under the corresponding size class column.

List of Common Understory Species 3'-20': List all of the common understory species observed from each directional point.

List of Herbaceous Species 0'-3": List the herbaceous species observed from each directional point.

List of Invasive Species: List all of the invasive species observed from each directional point and for all layers. (Overstory (O), Understory (U), and Herbaceous (H).

August, 2010 A-1, FSD 7



PERCENT CROWN COVER

DENSITY CLASS

- 1 - VERY SPARSE 0 - 10%
- 2 - SPARSE 10 - 40%
- 3 - MODERATE 40 - 70%
- 4 - DENSE 70 - 100%

Data Collection Methodology

Approximately 37.5' radius around sample plot center point

DBH (diameter at breast height) measures tree trunk at 4.5' off ground

Measured using a Cruiser's crutch or wedge prism

Species prevalence: Dominant, co-dominant, or other

Trees that are no longer living, but still standing, provide habitat value.

Native "non-woody" species

Woody and "non-woody" species

Assesses relative age and location of forest

average of values to left

0-100% values taken at centerpoint and north, east, south, west quadrants

Forest Sample Plot Field Data Sheet

Property: *Greenbelt Forest Preserve* Prepared By: *CML/MMW*

Stand#: S# Plot#: P# Plot Size: *1/10 AC* Date: *2015- -*

Basal Area in sf/acre	Size Class of Trees within sample plot															
Tree Species	# of Trees 2-5.9" dbh			# of Trees 6-9.9" dbh			# of Trees 10-17.9" dbh			# of Trees 18-29.9" dbh			# of Trees >30" dbh			Total
Crown Position	Dom	CoD	Other	Dom	CoD	Other	Dom	CoD	Other	Dom	CoD	Other	Dom	CoD	Other	
																0
																0
																0
																0
																0
																0
																0
																0
																0
																0
																0
Total Number of Trees per Size Class	0			0			0			0			0			0
Number & Size of Standing Dead Trees 6" dbh or greater	0			0			0			0			0			0

1/100 AC Samples:

List of Common Understory Species 3'-20':

% of Canopy Closure

C	N	E	S	W	Total
					###

% Invasive Cover

C	N	E	S	W	Total
					###

Plot Successional Stage:
Early-, Mid-, or Late-Successional upland/lowland forest

List of Herbaceous Species:

% Understory Cover 3'-20'

C	N	E	S	W	Total
					###

List of Invasive Species:

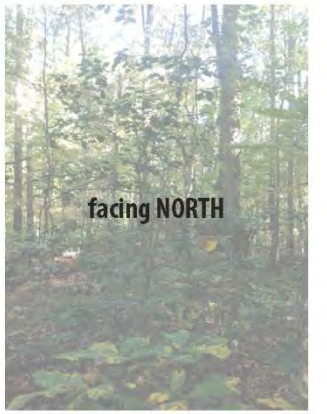
% Herbaceous/Woody Cover 0'-3'

C	N	E	S	W	Total
					###

Comments:

Total number of tree species >6":

Sheet 1 of x



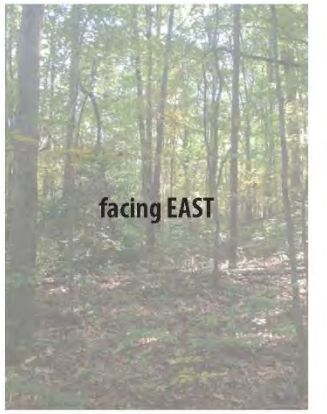
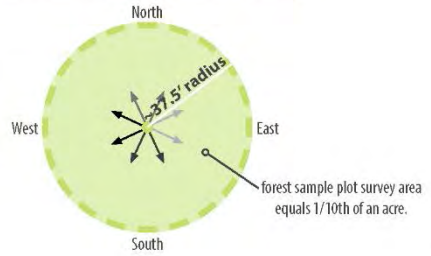


PHOTO INDEX:

We took four photographs for each forest sample plot. The location of these photographs is the center point of each sample plot, and each photograph faces one of the four cardinal directions (west, north, east, south). These pictures correspond to the sample plot on the adjacent preceding page. Each set of photographs follows the same order clockwise- from top left: looking west, looking north, looking east, looking south.



Data Collection Methodology

Forest Stand Summary Sheet

Property Name: *Greenbelt Forest Preserve*
Location: *Greenbelt, MD*
Prepared By: *CML* Date: *2015- -*

Stand Variable	Stand # #
1. Dominant species/Codominant species	_____
2. Forest Association	*Tulip poplar association, White oak-Red oak association, Red maple-Sweet gum association, OR Highly disturbed/invasive association*
3. Successional stage	*Early-successional, Mid-successional, OR Late-successional*
4. Basal area in s.f. per acre	#
5. Size class of dominant species	*2-5.9", 6-9.9", 10-17.9", 18-29.9", OR >30" dbh*
6. Percent of canopy closure	*0-100%*
7. Number of tree species	#
8. Common understory species	_____
9. Percent of understory cover 3' to 20' tall	*0-100%*
10. Number of understory species 3' to 20' tall	#
11. Common herbaceous species	_____
12. Percent of herbaceous & woody plant cover 0' to 3' tall	*0-100%*
13. List of major invasive plant species & percent of cover	_____
14. Number of standing dead trees 6" dbh or greater (average per plot)	#
15. Comments	_____

Sheet 1 of 1

The Greenbelt Forest Preserve, North Tract and South Tract, contains 16 forest stands

"Forest association" is a term used to describe the overall and distinct characteristics of a forest stand

Part A: Composition and Structure		Plot P1 Stand 1	Part B: Condition	
1. Percent canopy closure			1. Invasive species coverage (%)	
70-100%	3		Herbaceous	
40-69%	2		<1	3
10-39%	1		1-5	2
0-9%	0		>5	1
2. Number of shrubs under 20' tall			Understory	
15 or more	3		<1	3
10-14	2		1-5	2
5-9	1		>5	1
0-4	0			
			Canopy	
3. # of tree species 5" DBH and greater			<1	3
6 or more	3		1-5	2
4-5	2		>5	1
2-3	1			
0-1	0		2. Percent of damage from insect & disease or storm damage	
			0-10	3
4. Size class of dominant trees			11-20	2
Greater than 20"	3		21-30	1
6-19.9"	2		31+	0
3-5.9"	1			
Less than 3"	0		3. Percent of downed dead woody material present	
			51-100%	3
5. Percent herbaceous and shrub cover under 3'			15-50%	2
75-100%	3		5-14%	1
25-74%	2		0-4%	0
5-24%	1			
0-4%	0		4. Average number of standing dead trees/tenth acre plot	
			0-1	3
6. Stocking level (BA)			2	2
>120	3		3-5	1
50-120	2		5 or more	0
<50	1			
			5. Other features	
7. Other features				2
	2			1
	1			

Part C: Location					
	Priority 1	20		Stand	Location Rating
	Priority 2	15		1	
	Priority 3	10		2	

Part D: Stand Function						
Stand	Water Quality Protection	Visual Screening	Wildlife Habitat	Energy Conservation	Personal Woodlot	Other Function
1						
2						

Summary Table - Forest Analysis and Priorities							
	Part A	Part B	Part C				
Stand	Structure (Out of 20)	Condition (Out of 20)	Location (Out of 20)	Total (Out of 60)		Priority for Preservation (H, M or L)	Priority for Restoration (H, M or L)
1							
2							

The Summary table is a rating system used by the state of Maryland to assign numerical value to a forest stand. The Forest Sample Plot Field Data Sheets provide data for Parts A and B, shown on the subsequent pages.

Priority 1 is defined as a forest stand that contains any of the following: green infrastructure network, critical habitat areas, contiguous wooded areas, specimen, champion and historic trees, forest legacy trees that are within an environmental setting of a historic site, wetlands, streams, steep slopes, erodible soils, or habitat for birds that are forest interior dwelling species (FIDS).

Priority 2 is any forest stand adjacent to Priority 1 forest, contains Marlboro and/or Christiana soils complex, or is adjacent to roadways.

All other areas are designated as Priority 3.

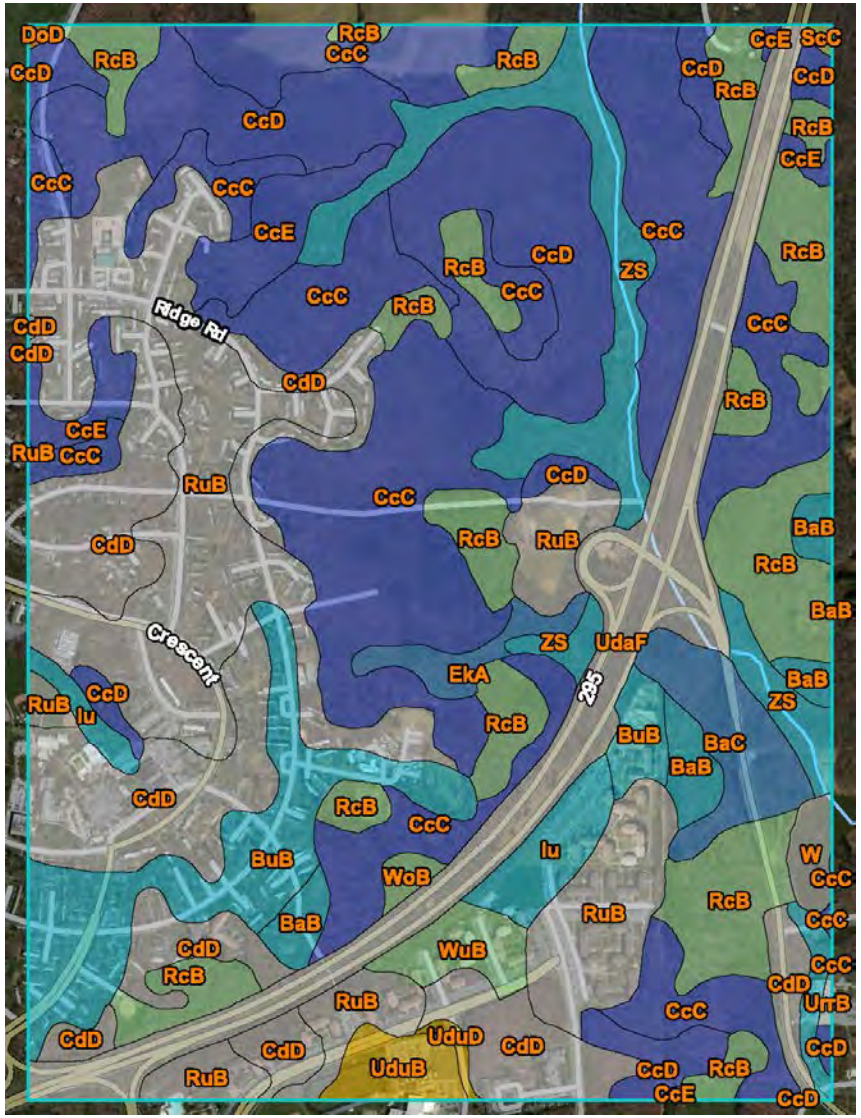
Each stand is categorized as High, Medium, or Low priority based on the total number of points awarded.

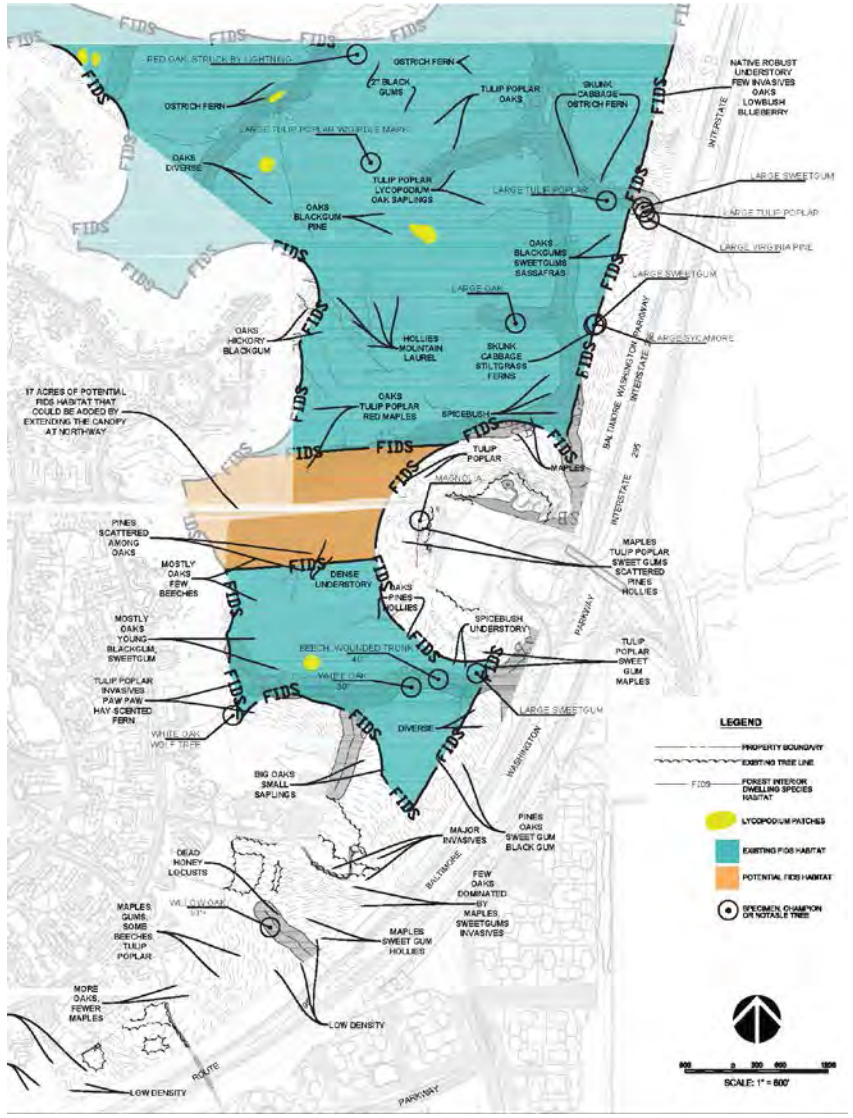
Priority for preservation:
- High: Located in Priority 1 areas regardless of structure or condition, or scoring more than 15 in either structure or condition or total stand analysis of 45 or greater
- Medium: Located in a Priority 2 area, or scoring 12–15 in structure and condition or total stand analysis of 30 or greater
- Low: Located in a Priority 3 area, or scoring less than 12 in structure or condition or total stand analysis less than 30

Priority for Restoration:
- High: Located in a Priority 1 area
- Medium: Located in a Priority 2 area
- Low: Located in a Priority 3 area

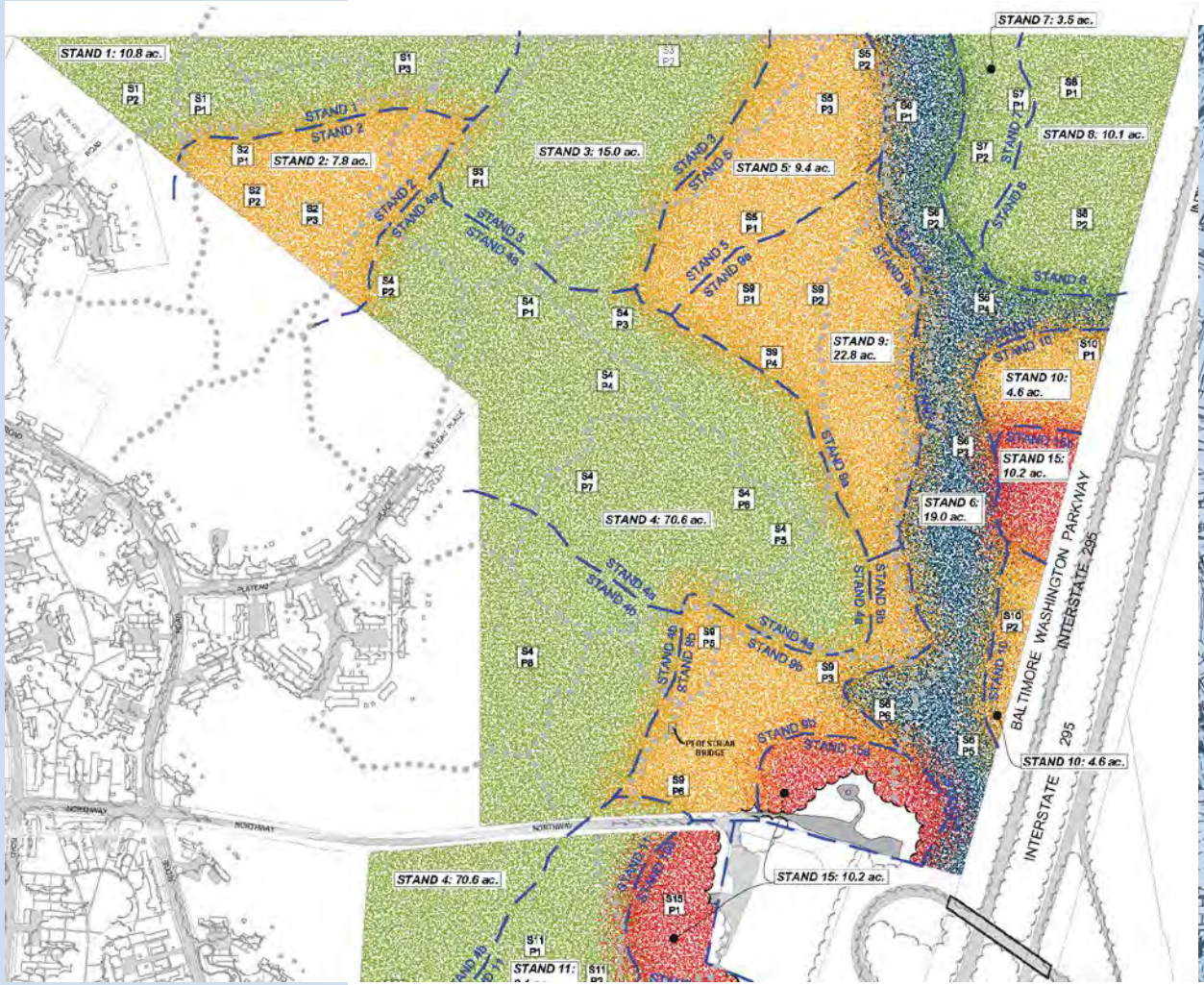
Data Collection Methodology

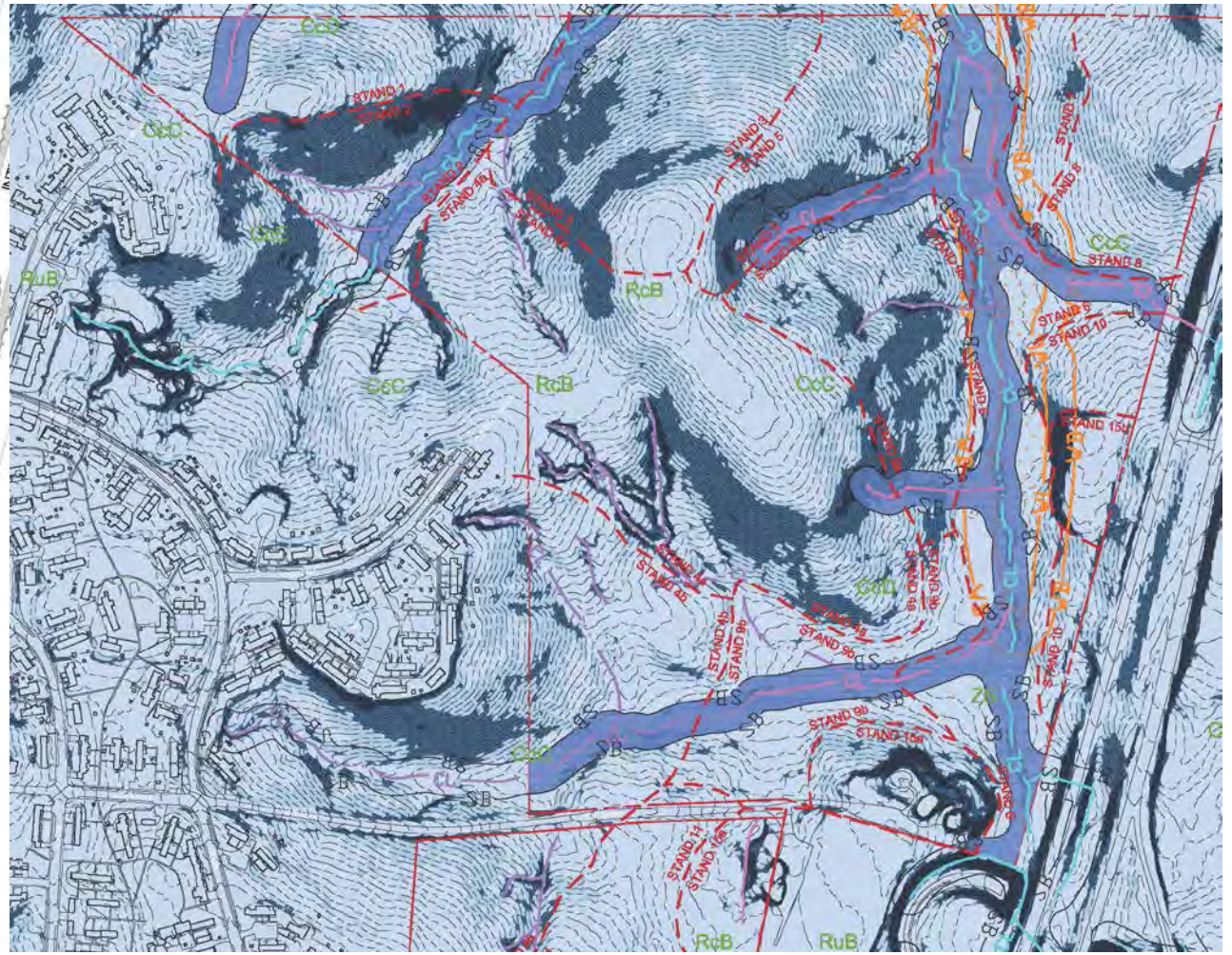
- Waste
- Fire
- Hazardous Material
- Adjacent Land Use
- Soils & Soil Erosion
- Streams and Water Quality





North Preserve Forest Stands





Stand 1 & Stand 3

Stand 4A & Stand 4B

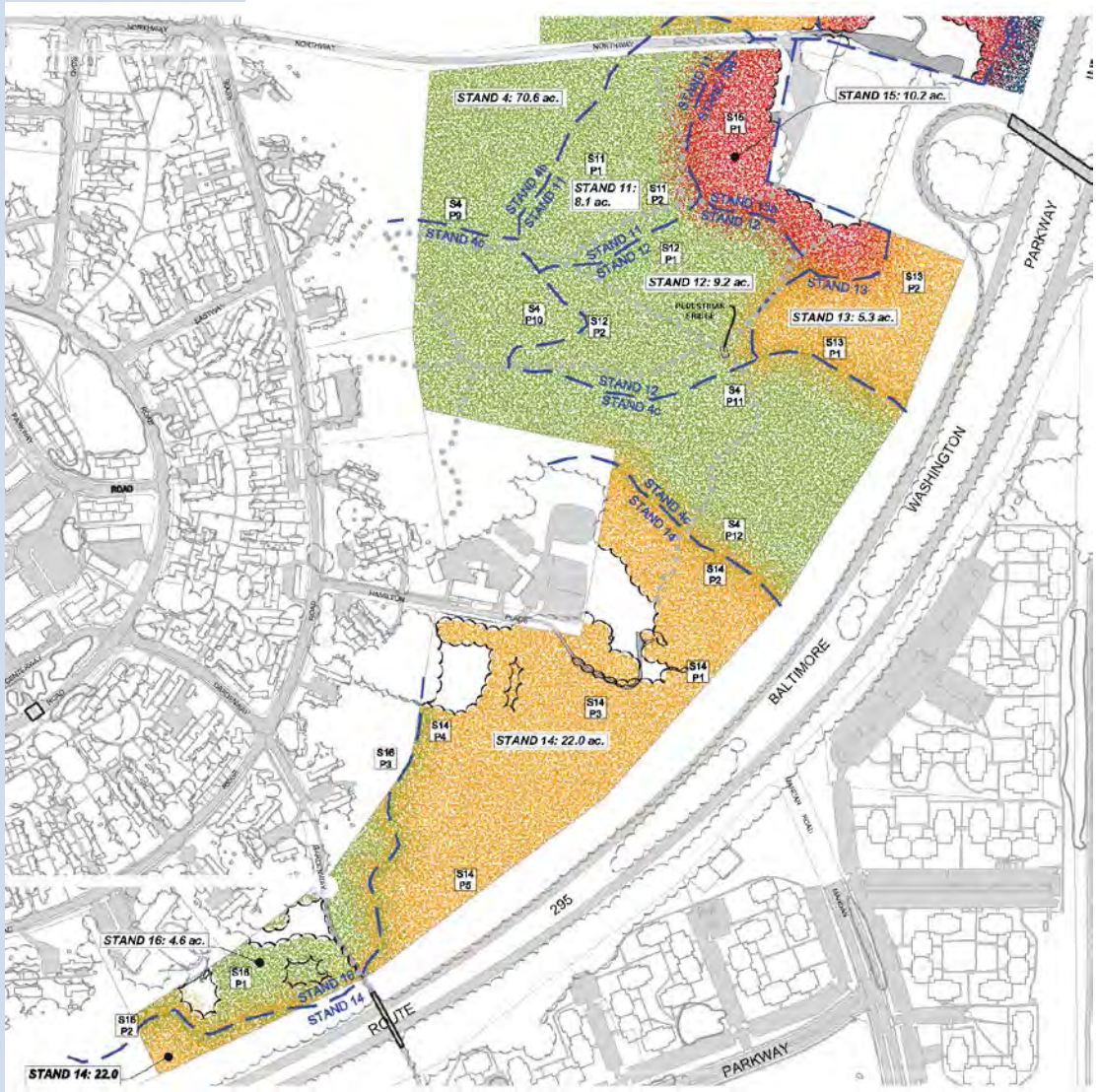
Stand 2 & Stand 5

Stand 9A & Stand 9B

Stand 7 & Stand 8

Stand 10 & Stand 15b

South Preserve Forest Stands



Stand 4B & Stand 4C

Stand 11 & Stand 12

Stand 13 & Stand 14

Stand 16 & Stand 15